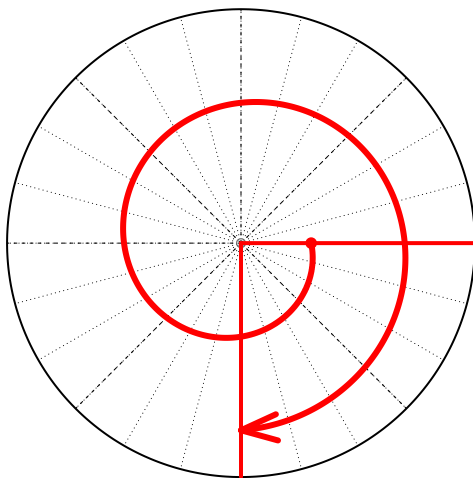## u12 Radians, Degrees, and Arc Length Solution (version 1)

1. Write in the angles, in **degrees and radians**. Please put the angles in their standard locations, and put radians in exact, and simplified, form.
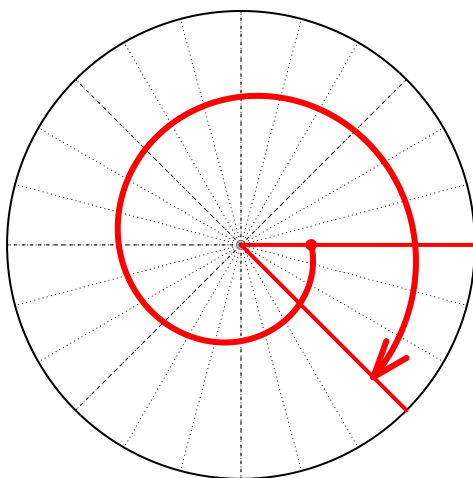
u12 Radians, Degrees, and Arc Length Solution (version 1)

2. On the circle below, draw a sketch of a **-450º** angle in standard position. Include the initial ray, the terminal ray, and the spiral arrow indicating direction and full extent of the angle. For your reference, the first few multiples of 360 are 360, 720, 1080, and 1440.

3. On the circle below, draw a sketch of a $\dfrac{-9\pi}{4}$ angle in standard position. Include the initial ray, the terminal ray, and the spiral arrow indicating direction and full extent of the rotation.

4. A circle, a central angle, and the subtended arc are drawn. The arc length is 12 meters. The central angle is θ radians. The radius is 4 meters. Find θ.
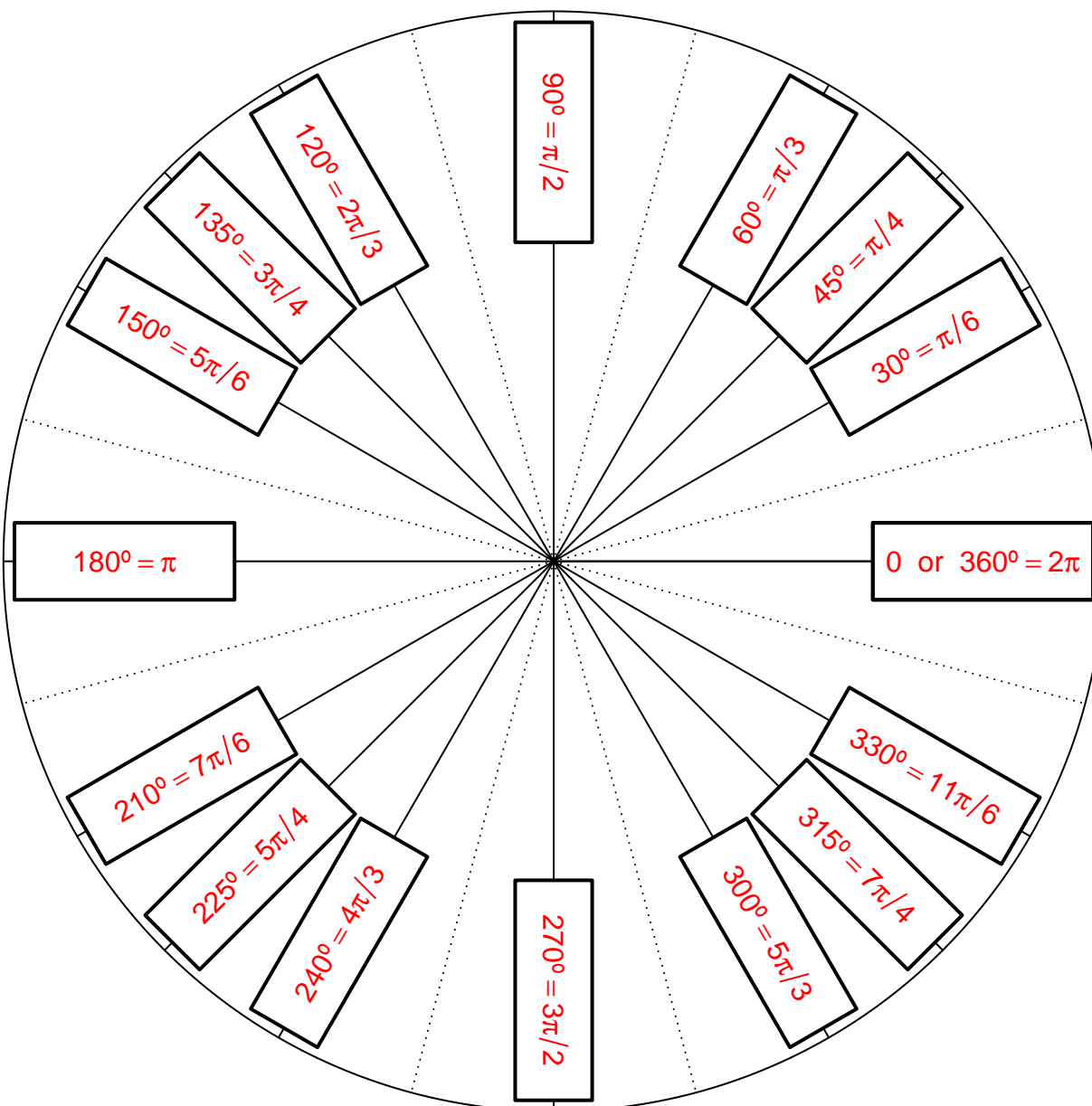
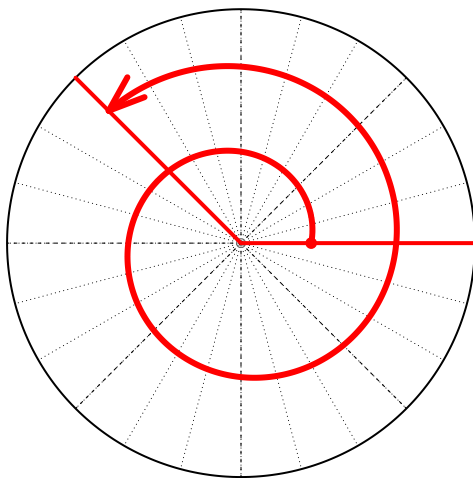$$\theta = \frac{L}{r} = \frac{12}{4} = 3$$

u12 Radians, Degrees, and Arc Length Solution (version 2)

1. Write in the angles, in **degrees and radians**. Please put the angles in their standard locations, and put radians in exact, and simplified, form.
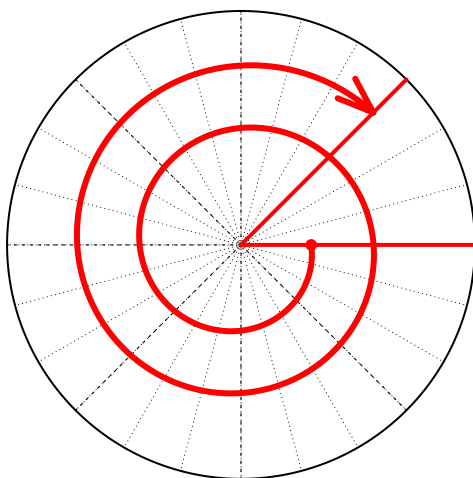
u12 Radians, Degrees, and Arc Length Solution (version 2)

2. On the circle below, draw a sketch of a **495⁰** angle in standard position. Include the initial ray, the terminal ray, and the spiral arrow indicating direction and full extent of the angle. For your reference, the first few multiples of 360 are 360, 720, 1080, and 1440.

3. On the circle below, draw a sketch of a $\dfrac{-15\pi}{4}$ angle in standard position. Include the initial ray, the terminal ray, and the spiral arrow indicating direction and full extent of the rotation.

4. A circle is drawn with a central angle of 2 radians. The radius is r meters and the subtended arc length is 10 meters. Find r.
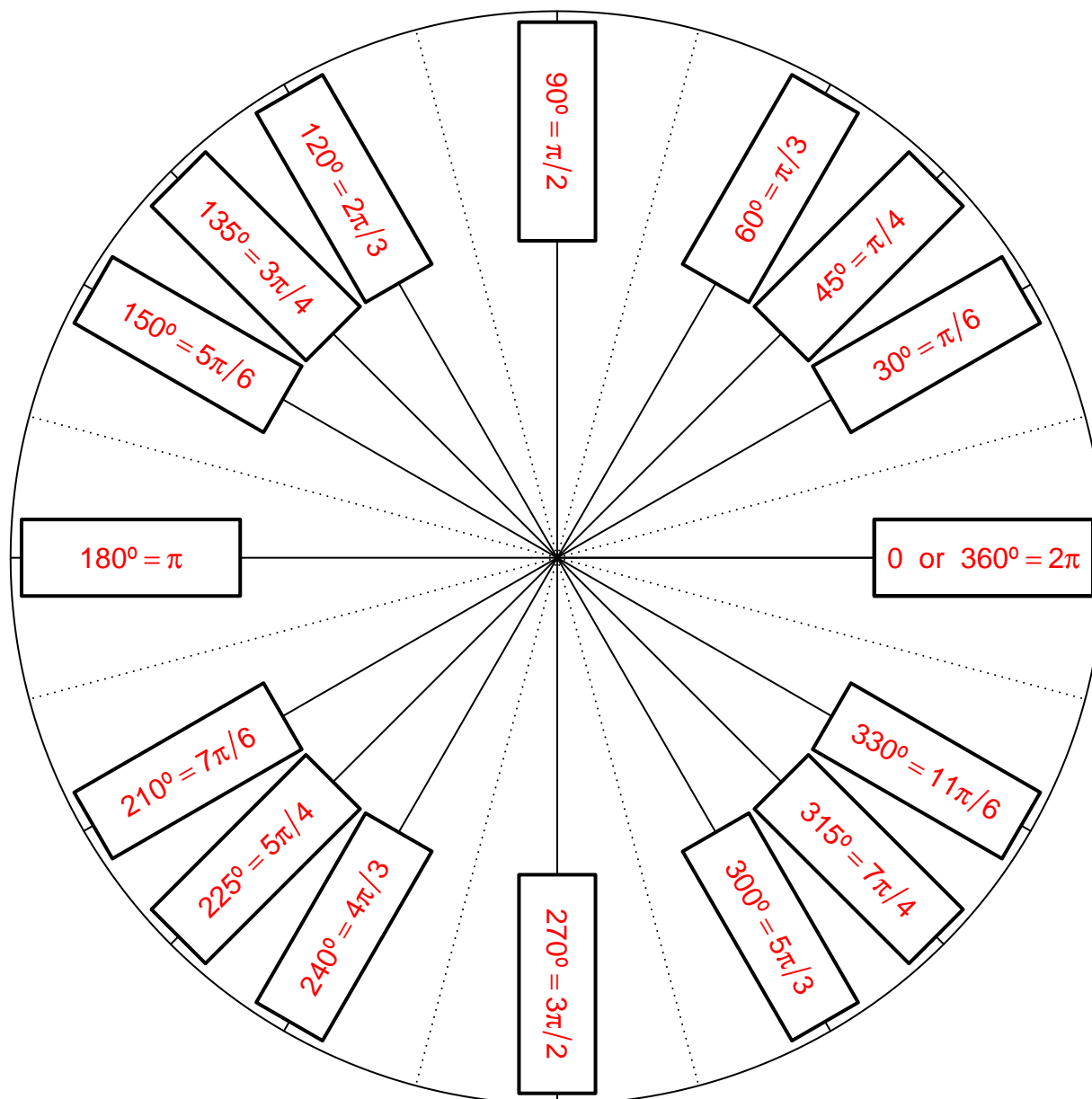
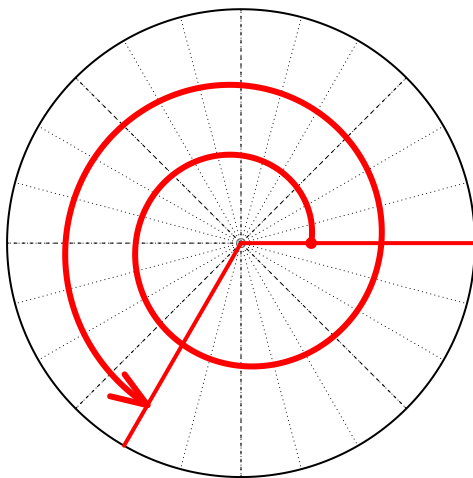$$r = \frac{L}{\theta} = \frac{10}{2} = 5$$

u12 Radians, Degrees, and Arc Length Solution (version 3)

1. Write in the angles, in **degrees and radians**. Please put the angles in their standard locations, and put radians in exact, and simplified, form.
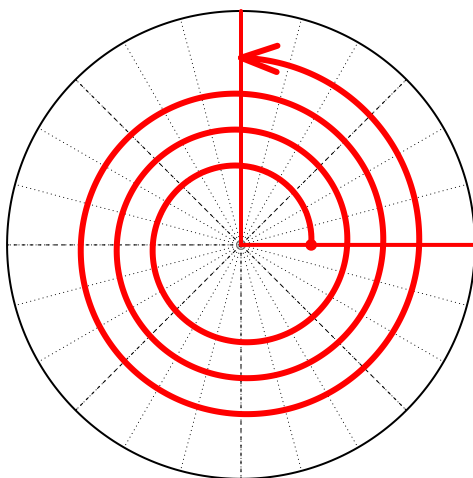
u12 Radians, Degrees, and Arc Length Solution (version 3)

2. On the circle below, draw a sketch of a **600º** angle in standard position. Include the initial ray, the terminal ray, and the spiral arrow indicating direction and full extent of the angle. For your reference, the first few multiples of 360 are 360, 720, 1080, and 1440.

3. On the circle below, draw a sketch of a $\dfrac{13\pi}{2}$ angle in standard position. Include the initial ray, the terminal ray, and the spiral arrow indicating direction and full extent of the rotation.

4. A circle, a central angle, and the subtended arc are drawn. The arc length is 24 meters. The central angle is θ radians. The radius is 4 meters. Find θ.
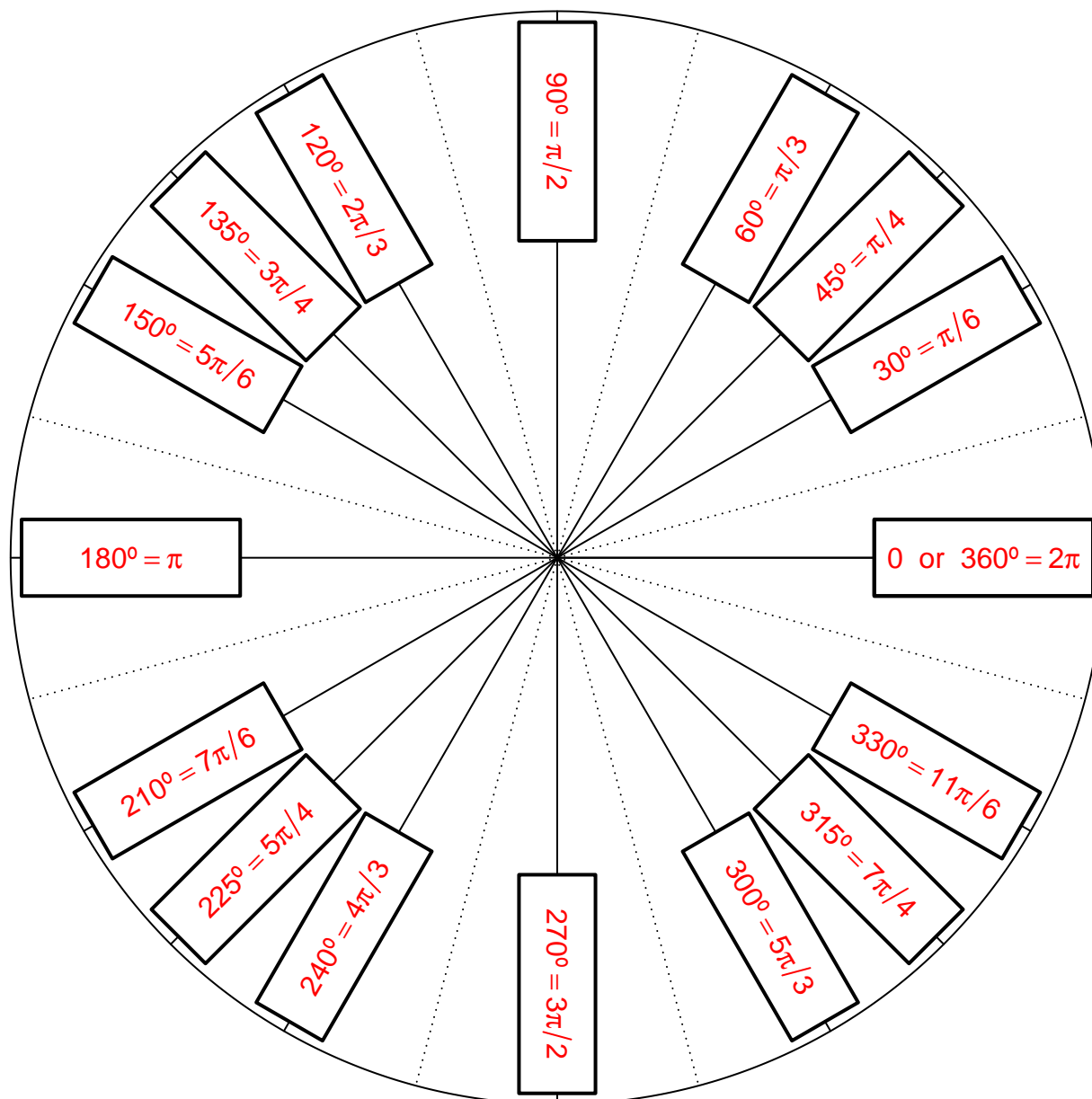
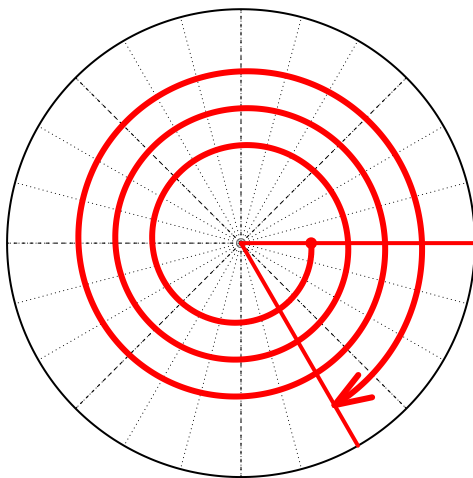$$\theta = \frac{L}{r} = \frac{24}{4} = 6$$

u12 Radians, Degrees, and Arc Length Solution (version 4)

1. Write in the angles, in **degrees and radians**. Please put the angles in their standard locations, and put radians in exact, and simplified, form.
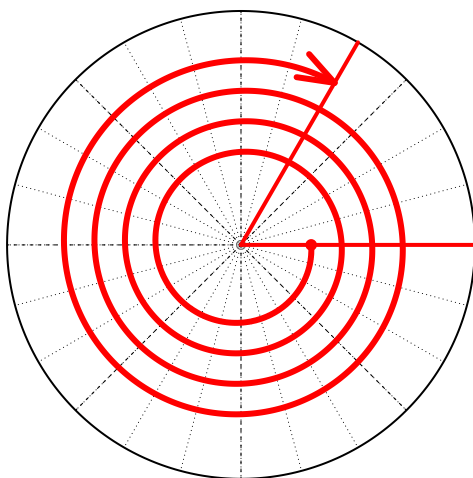
u12 Radians, Degrees, and Arc Length Solution (version 4)

2. On the circle below, draw a sketch of a **-1140º** angle in standard position. Include the initial ray, the terminal ray, and the spiral arrow indicating direction and full extent of the angle. For your reference, the first few multiples of 360 are 360, 720, 1080, and 1440.

3. On the circle below, draw a sketch of a $\dfrac{-23\pi}{3}$ angle in standard position. Include the initial ray, the terminal ray, and the spiral arrow indicating direction and full extent of the rotation.

4. A circle is drawn with a central angle of 3 radians. The radius is 6 meters and the subtended arc length is L meters. Find L.
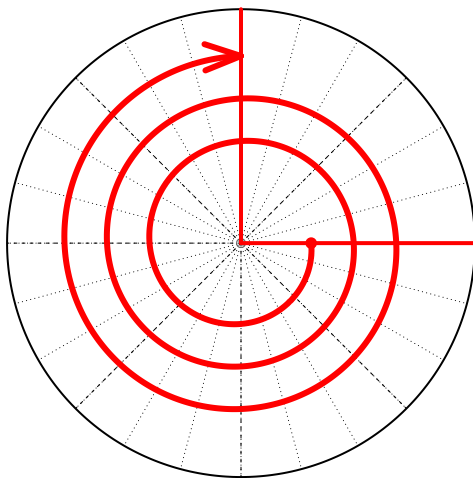
$$L = r\theta = 6 \cdot 3 = 18$$

2

u12 Radians, Degrees, and Arc Length Solution (version 5)

1. Write in the angles, in **degrees and radians**. Please put the angles in their standard locations, and put radians in exact, and simplified, form.
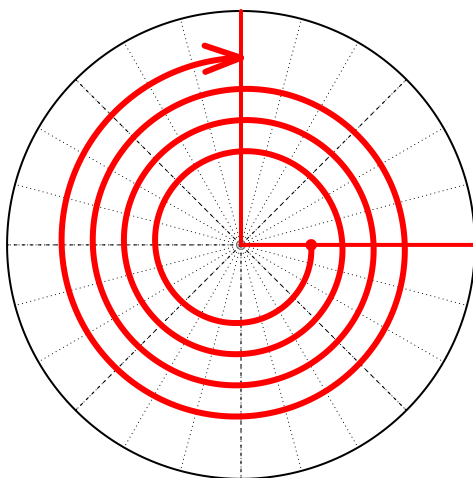
u12 Radians, Degrees, and Arc Length Solution (version 5)

2. On the circle below, draw a sketch of a **-990º** angle in standard position. Include the initial ray, the terminal ray, and the spiral arrow indicating direction and full extent of the angle. For your reference, the first few multiples of 360 are 360, 720, 1080, and 1440.

3. On the circle below, draw a sketch of a $\dfrac{-15\pi}{2}$ angle in standard position. Include the initial ray, the terminal ray, and the spiral arrow indicating direction and full extent of the rotation.

4. A circle, a central angle, and the subtended arc are drawn. The arc length is 12 meters. The central angle is θ radians. The radius is 2 meters. Find θ.
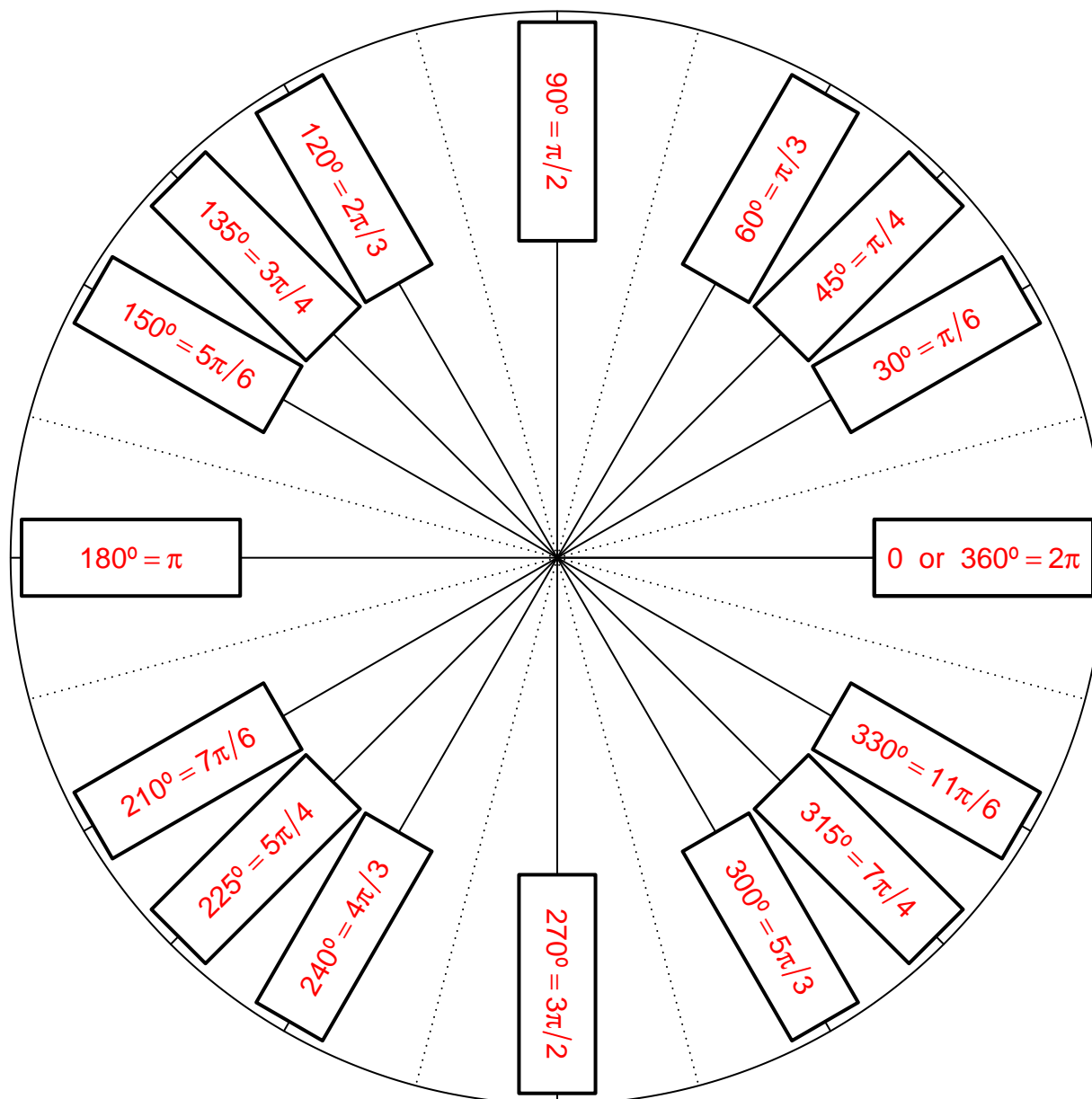
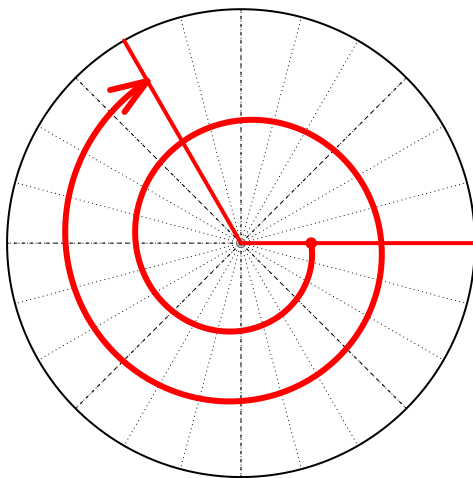$$\theta = \frac{L}{r} = \frac{12}{2} = 6$$

u12 Radians, Degrees, and Arc Length Solution (version 6)

1. Write in the angles, in **degrees and radians**. Please put the angles in their standard locations, and put radians in exact, and simplified, form.
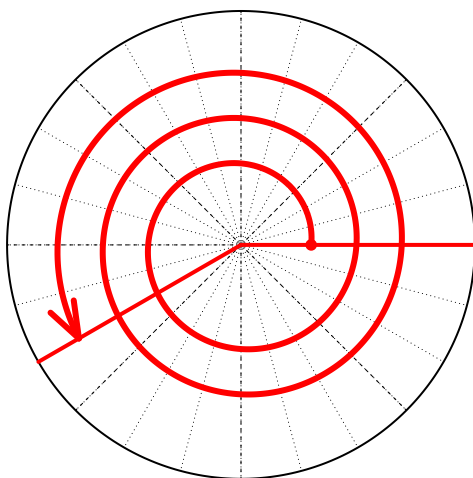
u12 Radians, Degrees, and Arc Length Solution (version 6)

2. On the circle below, draw a sketch of a **-600⁰** angle in standard position. Include the initial ray, the terminal ray, and the spiral arrow indicating direction and full extent of the angle. For your reference, the first few multiples of 360 are 360, 720, 1080, and 1440.

3. On the circle below, draw a sketch of a $\dfrac{31\pi}{6}$ angle in standard position. Include the initial ray, the terminal ray, and the spiral arrow indicating direction and full extent of the rotation.

4. A circle is drawn with a central angle of 4 radians. The radius is r meters and the subtended arc length is 20 meters. Find r.
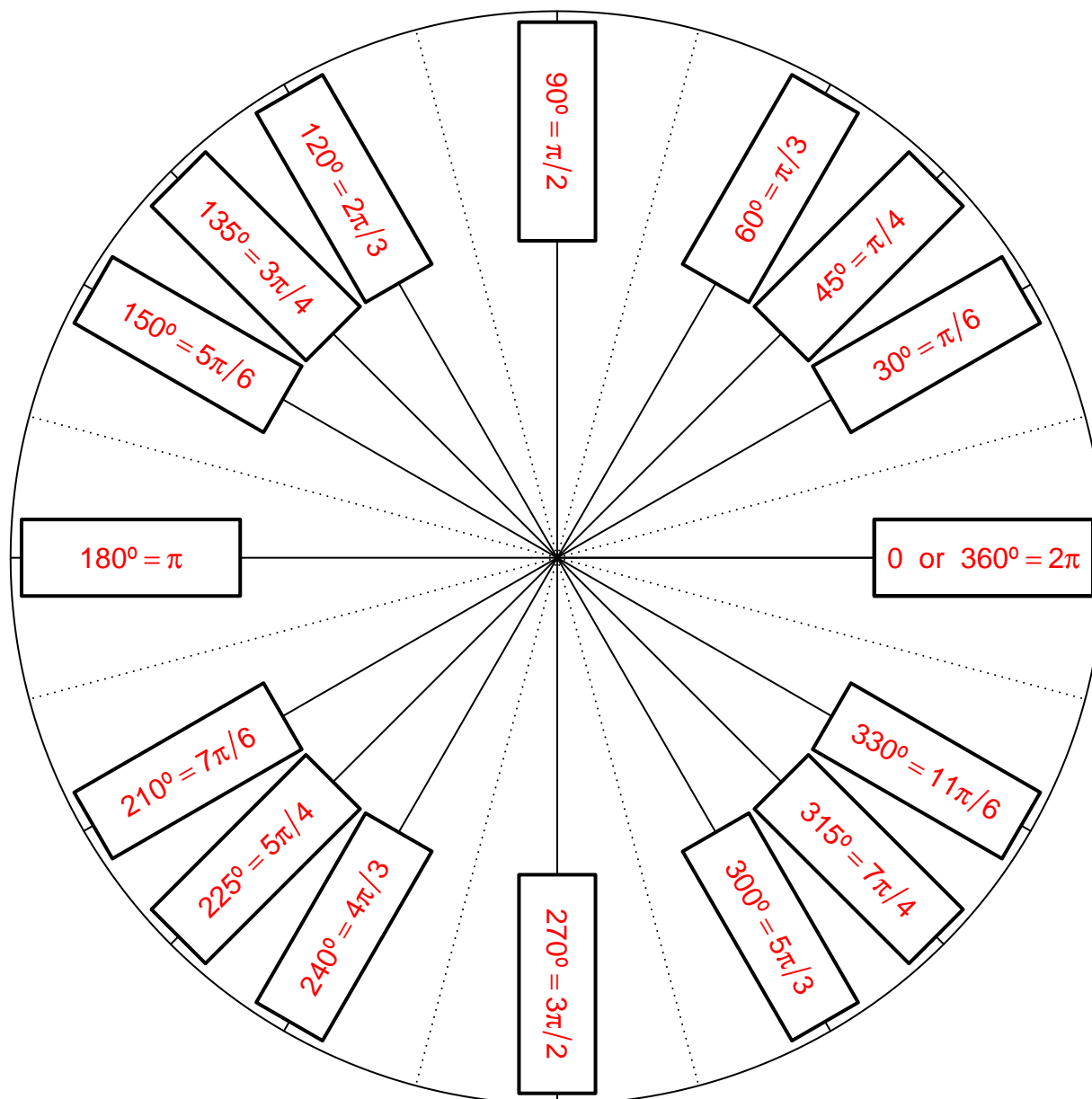
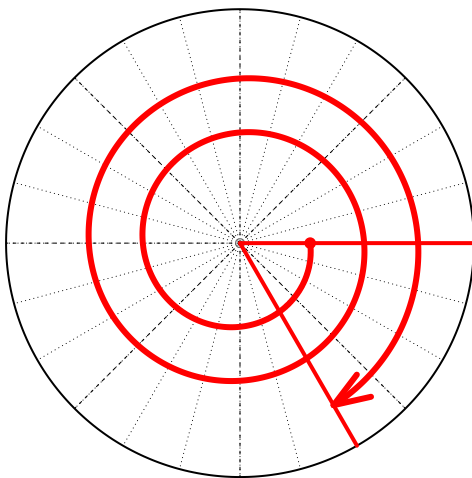$$r = \frac{L}{\theta} = \frac{20}{4} = 5$$

2

u12 Radians, Degrees, and Arc Length Solution (version 7)

1. Write in the angles, in **degrees and radians**. Please put the angles in their standard locations, and put radians in exact, and simplified, form.
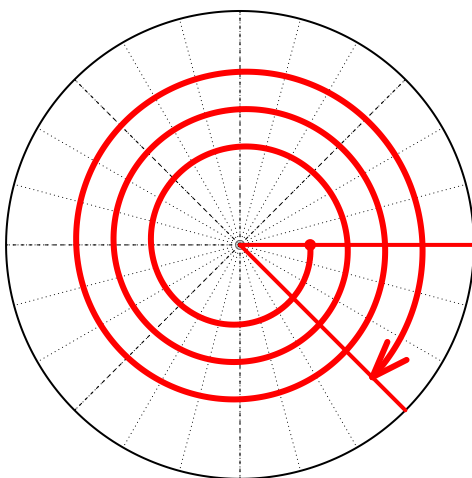
u12 Radians, Degrees, and Arc Length Solution (version 7)

2. On the circle below, draw a sketch of a **-780º** angle in standard position. Include the initial ray, the terminal ray, and the spiral arrow indicating direction and full extent of the angle. For your reference, the first few multiples of 360 are 360, 720, 1080, and 1440.

3. On the circle below, draw a sketch of a $\dfrac{-25\pi}{4}$ angle in standard position. Include the initial ray, the terminal ray, and the spiral arrow indicating direction and full extent of the rotation.

4. A circle is drawn with a central angle of 6 radians. The radius is 3 meters and the subtended arc length is L meters. Find L.
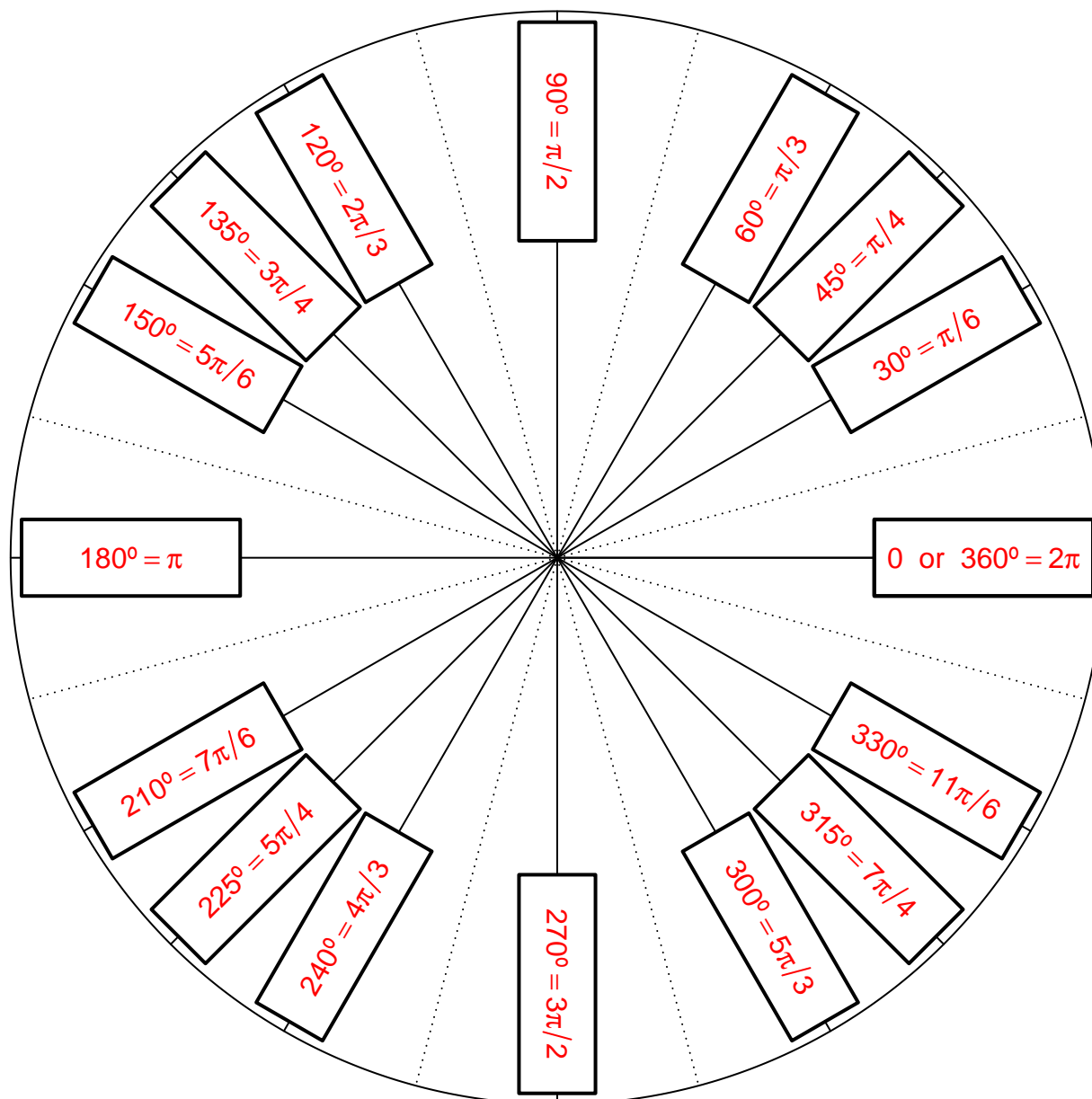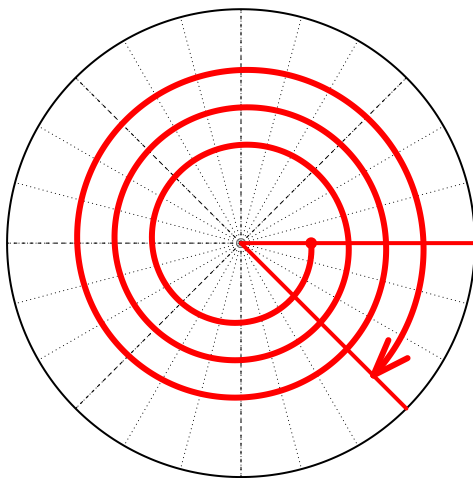
$$L = r\theta = 3 \cdot 6 = 18$$

u12 Radians, Degrees, and Arc Length Solution (version 8)

1. Write in the angles, in **degrees and radians**. Please put the angles in their standard locations, and put radians in exact, and simplified, form.
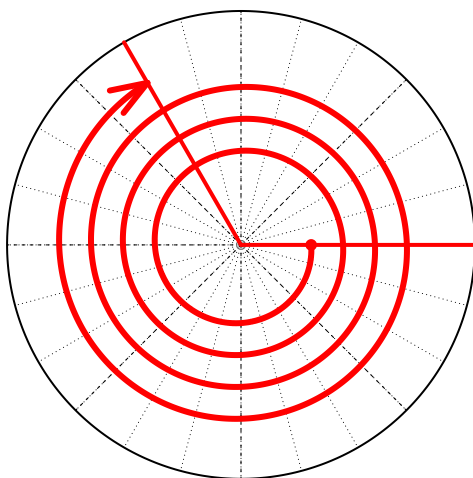
u12 Radians, Degrees, and Arc Length Solution (version 8)

2. On the circle below, draw a sketch of a **-1125°** angle in standard position. Include the initial ray, the terminal ray, and the spiral arrow indicating direction and full extent of the angle. For your reference, the first few multiples of 360 are 360, 720, 1080, and 1440.

3. On the circle below, draw a sketch of a $\dfrac{-22\pi}{3}$ angle in standard position. Include the initial ray, the terminal ray, and the spiral arrow indicating direction and full extent of the rotation.

4. A circle, a central angle, and the subtended arc are drawn. The arc length is 12 meters. The central angle is θ radians. The radius is 2 meters. Find θ.

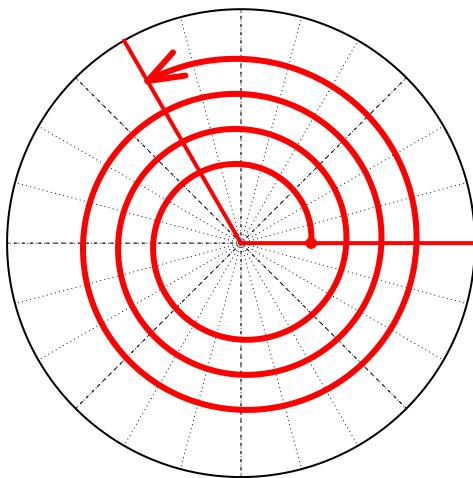$$\theta = \frac{L}{r} = \frac{12}{2} = 6$$

2

u12 Radians, Degrees, and Arc Length Solution (version 9)

1. Write in the angles, in **degrees and radians**. Please put the angles in their standard locations, and put radians in exact, and simplified, form.
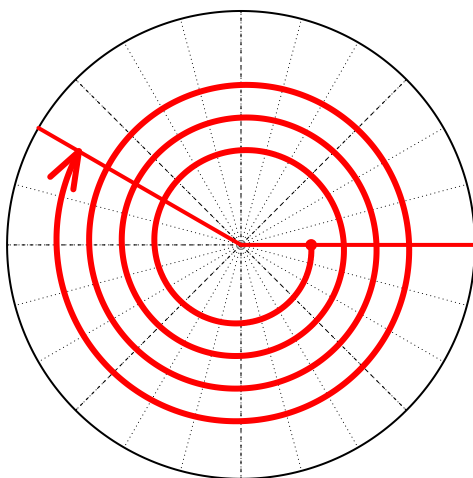
u12 Radians, Degrees, and Arc Length Solution (version 9)

2. On the circle below, draw a sketch of a **1200°** angle in standard position. Include the initial ray, the terminal ray, and the spiral arrow indicating direction and full extent of the angle. For your reference, the first few multiples of 360 are 360, 720, 1080, and 1440.

3. On the circle below, draw a sketch of a $\dfrac{-43\pi}{6}$ angle in standard position. Include the initial ray, the terminal ray, and the spiral arrow indicating direction and full extent of the rotation.

4. A circle is drawn with a central angle of 5 radians. The radius is 4 meters and the subtended arc length is L meters. Find L.
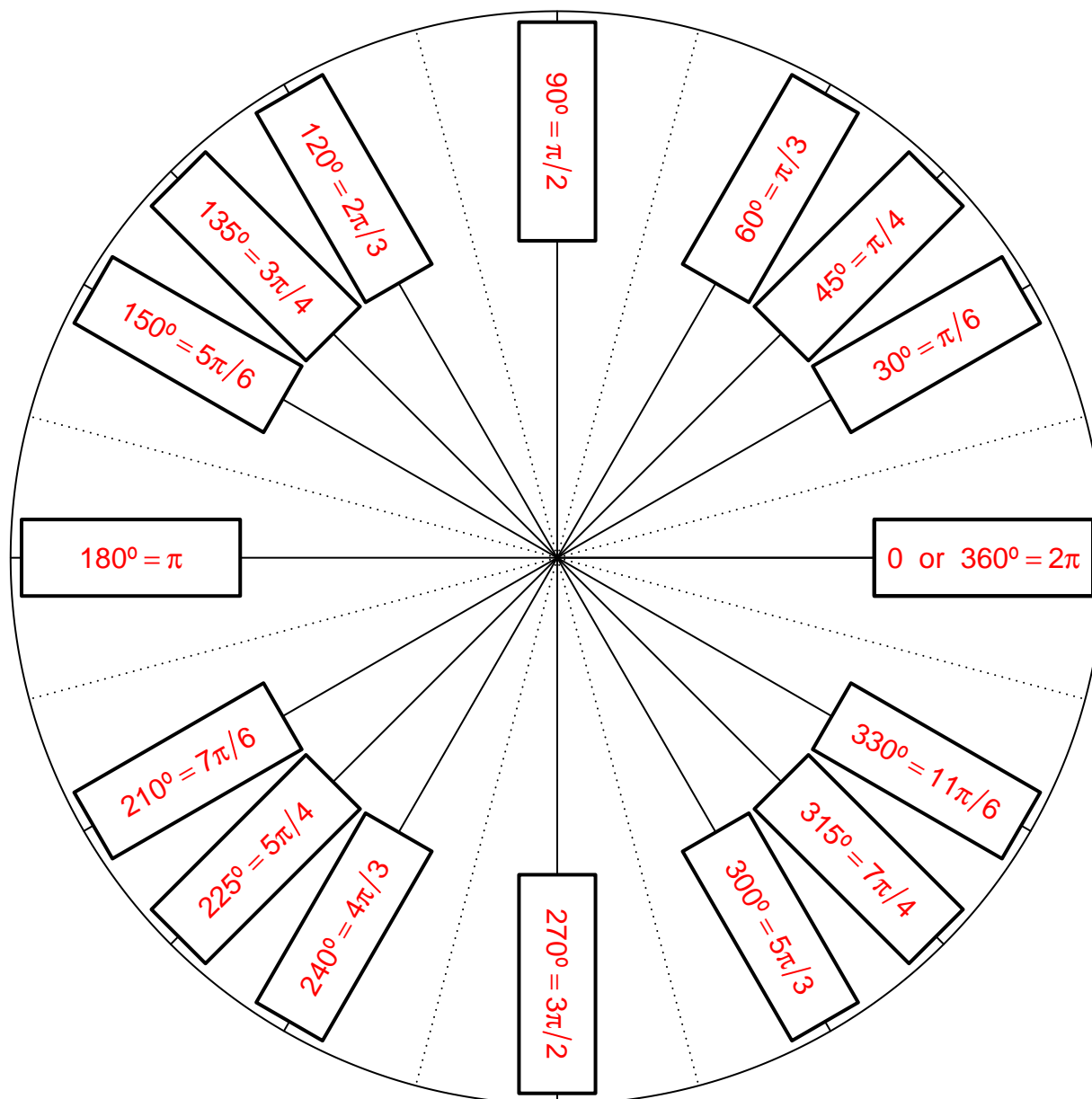
$$L = r\theta = 4 \cdot 5 = 20$$

2

u12 Radians, Degrees, and Arc Length Solution (version 10)

1. Write in the angles, in **degrees and radians**. Please put the angles in their standard locations, and put radians in exact, and simplified, form.

u12 Radians, Degrees, and Arc Length Solution (version 10)

2. On the circle below, draw a sketch of a **1305°** angle in standard position. Include the initial ray, the terminal ray, and the spiral arrow indicating direction and full extent of the angle. For your reference, the first few multiples of 360 are 360, 720, 1080, and 1440.
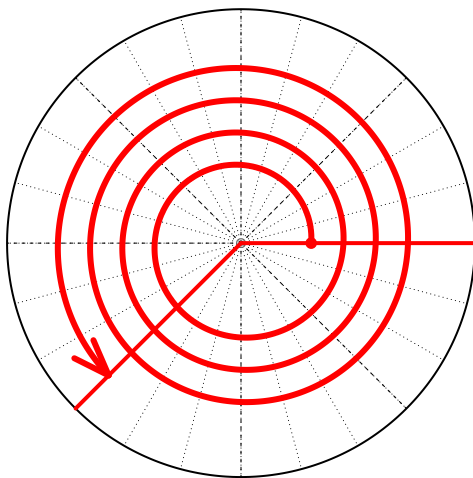
3. On the circle below, draw a sketch of a $\dfrac{43\pi}{6}$ angle in standard position. Include the initial ray, the terminal ray, and the spiral arrow indicating direction and full extent of the rotation.
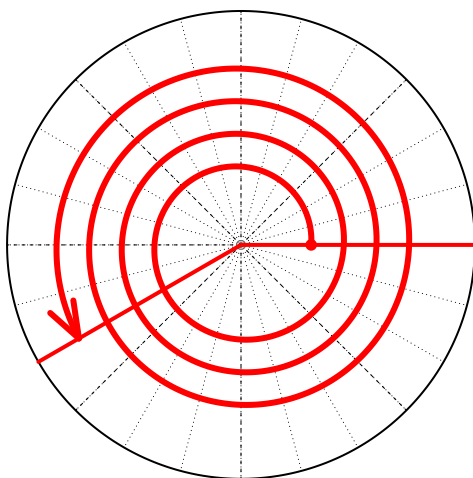
4. A circle, a central angle, and the subtended arc are drawn. The arc length is L meters. The central angle is 5 radians. The radius is 4 meters. Find L.

$$L = r\theta = 4 \cdot 5 = 20$$